

What is Claimed is:

1. A transfer switch comprising:
  - a circuit breaker housing;
  - a first line terminal;
  - a second line terminal;
  - a load terminal;
  - separable contacts electrically connected to said first line terminal;
  - a transfer arm electrically connected to said load terminal and adapted to move between a first position in which said transfer arm is electrically connected to said separable contacts and a second position in which said transfer arm is electrically connected to said second line terminal;
  - means for moving said transfer arm between the first and second positions thereof; and
  - an operating mechanism for opening and closing said separable contacts.
2. The transfer switch of Claim 1 wherein said operating mechanism includes an auxiliary contact having a first state when said separable contacts are open and a second state when said separable contacts are closed; and wherein said means for moving said transfer arm includes means for inputting said auxiliary contact and moving said transfer arm to the first position thereof in response to the first state of said auxiliary contact.
3. The transfer switch of Claim 2 wherein said operating mechanism further includes an operating handle to open and close said separable contacts, said operating handle having a surface, an ON position, and an OFF position, said separable contacts being closed in said ON position, and being open in said OFF position; and wherein said operating mechanism further includes a switch having an actuator lever movable between an actuated position and a non-actuated position and being adapted to engage the surface of the operating handle of said operating mechanism, said switch also having said auxiliary contact with the first state corresponding to said non-actuated position and the second state corresponding to said actuated position, the surface of said operating handle engaging and moving

48003224474500

said actuator lever to said actuated position in the ON position of said operating handle, said actuator lever being in said non-actuated position in the OFF position of said operating handle.

4. The transfer switch of Claim 1 wherein said operating mechanism includes a thermal trip circuit to trip open said separable contacts.

5. The transfer switch of Claim 1 wherein said operating mechanism includes a magnetic trip circuit to trip open said separable contacts.

6. The transfer switch of Claim 1 wherein said operating mechanism includes a thermal / magnetic trip circuit to trip open said separable contacts.

7. The transfer switch of Claim 1 wherein said means for moving said transfer arm includes a solenoid having a first coil, a second coil and a plunger engaging said transfer arm, said first coil adapted for energization by a first signal to move said plunger in a first direction to move said transfer arm to the first position thereof, said second coil adapted for energization by a second signal to move said plunger in a second direction to move said transfer arm to the second position thereof.

8. The transfer switch of Claim 7 wherein said means for moving said transfer arm further includes a micro-switch having a normally open contact electrically connected in series with the first coil, a normally closed contact electrically connected in series with the second coil, and an operating member for switching said normally open contact and said normally closed contact, said normally closed contact and said normally open contact having a common terminal adapted to receive a control voltage to energize one of the first and second coils; and wherein the plunger of said solenoid has a projection which engages and actuates the operating member in the first position of said transfer arm, thereby causing said normally closed contact to open and said normally open contact to close.

9. The transfer switch of Claim 1 wherein said housing includes a pivot point; and wherein said transfer arm includes a first end, a second end and a pivot therebetween, said pivot pivotally engaging the pivot point of said housing and being adapted to pivot said transfer arm between the first and second positions thereof.

100-200-200-200-200-200

10. The transfer switch of Claim 9 wherein said means for moving said transfer arm includes a solenoid having a plunger which engages the transfer arm between the pivot and one of the first and second ends thereof.

11. The transfer switch of Claim 1 wherein said housing includes a pivot point; wherein said separable contacts are electrically connected with a conductor; and wherein said transfer arm includes a first end, a second end and an intermediate portion therebetween, the first end having a pivot adapted for movement of the transfer arm between the first and second positions thereof, the second end having a first contact adapted for electrical connection with the conductor of said separable contacts in the first position of said transfer arm and a second contact adapted for electrical connection with the second line terminal in the second position of said transfer arm, the intermediate portion of said transfer arm adapted for movement by said means for moving said transfer arm.

12. The transfer switch of Claim 11 wherein said means for moving said transfer arm includes a solenoid having a plunger which engages the transfer arm at the intermediate portion thereof.

13. The transfer switch of Claim 1 wherein said circuit breaker housing is a miniature circuit breaker housing.

14. A remotely controllable transfer switch comprising:
  - a circuit breaker housing;
  - a first line terminal;
  - a second line terminal;
  - a load terminal;
  - separable contacts electrically connected to said first line terminal;
  - a transfer arm electrically connected to said load terminal adapted to pivot between a first position in which said transfer arm is electrically connected to said separable contacts and a second position in which said transfer arm is electrically connected to said second line terminal;
  - a solenoid having a first coil, a second coil and a plunger engaging said transfer arm;

a control circuit for said solenoid including a first terminal adapted to receive a first external signal, a second terminal adapted to receive a second external signal, and a third terminal adapted to receive a control voltage, said control circuit responsive to said first external signal to energize said first coil with said control voltage in order to move said plunger in a first direction to pivot said transfer arm to the first position thereof, said control circuit responsive to said second external signal to energize said second coil with said control voltage in order to move said plunger in a second direction to pivot said transfer arm to the second position thereof; and

an operating mechanism for opening and closing said separable contacts.

15. The transfer switch of Claim 14 wherein said operating mechanism includes an auxiliary contact having a first state when said separable contacts are open and a second state when said separable contacts are closed; and wherein said control circuit includes means for inputting said auxiliary contact and moving said transfer arm to the first position thereof in response to the first state of said auxiliary contact.

16. The transfer switch of Claim 14 wherein said control circuit further includes a micro-switch having a normally open contact electrically connected in series with the first coil, a normally closed contact electrically connected in series with the second coil, and an operating member for switching said normally open contact and said normally closed contact, said normally closed contact and said normally open contact having a common terminal electrically connected to said third terminal to receive said control voltage to energize one of the first and second coils; and wherein the plunger of said solenoid has a projection which engages and actuates the operating member in the first position of said transfer arm, thereby causing said normally closed contact to open and said normally open contact to close.

17. The transfer switch of Claim 14 wherein said housing includes a pivot point; and wherein said transfer arm includes a first end, a second end and a pivot therebetween, said pivot pivotally engaging the pivot point of said housing, in order to pivot said transfer arm between the first and second positions thereof.

AUGUST 19, 1977  
U.S. GOVERNMENT PRINTING OFFICE: 1977 5-1000

18. The transfer switch of Claim 17 wherein the plunger of said solenoid engages the transfer arm between the pivot and one of the first and second ends thereof.

19. The transfer switch of Claim 14 wherein said housing includes a pivot point; wherein said separable contacts are electrically connected with a conductor; and wherein said transfer arm includes a first end, a second end and an intermediate portion therebetween, the first end having a pivot adapted for movement of the transfer arm between the first and second positions thereof, the second end having a first contact adapted for electrical connection with the conductor of said separable contacts in the first position of said transfer arm and a second contact adapted for electrical connection with the second line terminal in the second position of said transfer arm, the plunger of said solenoid moving the intermediate portion of said transfer arm.

20. The transfer switch of Claim 19 wherein the plunger of said solenoid engages the transfer arm at the intermediate portion thereof.

21. The transfer switch of Claim 14 wherein the control voltage has a return; wherein the first terminal is adapted for electrical connection with a first remote contact which is referenced to the return of the control voltage; and wherein the second terminal is adapted for electrical connection with a second remote contact which is referenced to the return of the control voltage.

22. A transfer switch comprising:

- a circuit breaker housing;
- a first line terminal;
- a second line terminal;
- a load terminal;
- separable contacts electrically connected to said first line terminal;

a transfer arm electrically connected to said load terminal and adapted to move between a first position in which said transfer arm is electrically connected to said separable contacts and a second position in which said transfer arm is electrically connected to said second line terminal;

an operating mechanism for opening and closing said separable contacts, said operating mechanism including an operating handle to open and close said separable contacts;

an auxiliary contact having a first state when said separable contacts are open and a second state when said separable contacts are closed; and

means for moving said transfer arm between the first and second positions thereof, said means for moving said transfer arm including means for inputting said auxiliary contact and moving said transfer arm to the first position thereof in response to the first state of said auxiliary contact.

1000 3331 44 1500